

WHAT IS CLAIMED IS:

1. A mobile communication terminal comprising:

a first body;

5 a second body; and

a hinge apparatus, which rotatively couples the first body to the second body, the hinge apparatus comprising:

a first hinge unit;

a second hinge unit;

10 a coupling hinge member disposed between the first and second hinge units; and

a rotation control device.

2. The mobile communication terminal of claim 1, wherein the first hinge unit comprises:

15 a first hinge housing formed approximate to a side edge of the first body; and

a first hinge member inserted into the first hinge housing.

3. The mobile communication terminal of claim 2, wherein the second hinge unit comprises:

20 a second hinge housing formed approximate to a bottom edge of the second body;

a second hinge member inserted into the second hinge housing; and

a spring disposed adjacent to the second hinge member in the second hinge housing.

4. The mobile communication terminal of claim 3, further comprising a shaft disposed in the second hinge housing, wherein the shaft passes through the spring, second hinge member and coupling hinge member.

5 5. The mobile communication terminal of claim 2, wherein guiding surfaces are formed on opposing surfaces of the first hinge member and coupling hinge member.

6. The mobile communication terminal of claim 5, wherein a groove, which is formed on the guiding surface of the first hinge member, engages a corresponding protrusion  
10 formed on the guiding surface of the coupling hinge member.

7. The mobile communication terminal of claim 5, wherein a groove, which is formed on the guiding surface of the coupling hinge member, engages a corresponding protrusion formed on the guiding surface of the first hinge member.

15 8. The mobile communication terminal of claim 3, wherein a convex portion and a concave portion are each formed on opposing surfaces of the coupling hinge member and the second hinge member such that the convex and concave portions of the coupling hinge member correspond to the concave and convex portions, respectively, of the second hinge member.

20 9. The mobile communication terminal of claim 3, wherein rotation-preventing surfaces are formed on a circumferential surface of each of the first, second and coupling hinge members.

10. The mobile communication terminal of claim 9, wherein first and second hinge contact surfaces are formed on an inner surface of each of the first and second hinge housing members, respectively, to engage the rotation-preventing surfaces of the first and second hinge members, respectively, to prevent rotation of the first and second hinge members, respectively.

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11. The mobile communication terminal of claim 2, wherein the rotation control device comprises:

a cap receiving portion formed on an inner surface of the first hinge housing;

a rotation control cap;

10 a cap receiving groove formed on the cap receiving portion;

a cap protrusion formed on an outer circumferential surface of the rotation control cap, wherein the cap receiving groove receives the cap protrusion;

a female screw thread formed on an inner circumferential surface of the rotation control cap; and

15 a male screw thread formed on a circumferential surface of the first hinge member, wherein the male screw thread engages the female screw thread of the rotation control cap.

12. The mobile communication terminal of claim 11, wherein the rotation control cap comprises an exposed portion to serve as a receiving point for torque applied by a user.

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13. The mobile communication terminal of claim 12, wherein the exposed portion comprises gripping means.

14. The mobile communication terminal of claim 13, wherein the gripping means comprises a plurality of knurls.

15. The mobile communication terminal of claim 11, further comprising a protrusion  
5 formed on each of the inner surfaces of the first hinge housing and rotation control cap such that the protrusion formed on the inner surface of the first hinge housing prevents lateral movement of the rotation control cap towards the second hinge housing.

16. The mobile communication terminal of claim 1, wherein a plurality of terminal  
10 manipulation devices are disposed on an inner surface of the first body.

17. The mobile communication terminal of claim 1, wherein a display screen is disposed on an inner surface of the second body.

15 18. A folding type mobile communication terminal, wherein a hinge apparatus rotatively couples a first body to a second body, the hinge apparatus comprising:  
a first hinge housing formed approximate to a side edge of the first body;  
a first hinge member inserted into the first hinge housing;  
a second hinge housing formed approximate to a bottom edge of the second body;  
20 a second hinge member inserted into the second hinge housing;  
a coupling hinge member disposed between the first and second hinge members;  
a spring disposed adjacent to the second hinge member in the second hinge housing;  
a shaft disposed in the second hinge housing, wherein the shaft passes through the spring,  
second hinge member and coupling hinge member; and

a rotation control device.

19. The folding type mobile communication terminal of claim 18, wherein the hinge apparatus further comprises:

5 guiding surfaces formed on opposing surfaces of the first hinge member and coupling hinge member, wherein a groove is formed on the guiding surface of the first hinge member and engages a corresponding protrusion formed on the guiding surface of the coupling hinge member.

10 20. The folding type mobile communication terminal of claim 18, wherein a convex portion and a concave portion are each formed on opposing surfaces of the coupling hinge member and the second hinge member such that the convex and concave portions of the coupling hinge member correspond to the concave and convex portions, respectively, of the second hinge member.

15 21. The folding type mobile communication terminal of claim 18, wherein the hinge apparatus further comprises:

rotation-preventing surfaces formed on a circumferential surface of each of the first, second and coupling hinge members; and

20 first and second hinge contact surfaces formed on an inner surface of each of the first and second hinge housing members, respectively, wherein the first and second hinge contact surfaces engage the rotation-preventing surfaces of the first and second hinge members, respectively, to prevent rotation of the first and second hinge members, respectively.

22. The folding type mobile communication terminal of claim 18, wherein the rotation control device comprises:

a cap receiving portion formed on an inner surface of the first hinge housing;

a rotation control cap having an exposed portion to serve as a receiving point for torque

5 applied by a user;

a cap receiving groove formed on the cap receiving portion;

a cap protrusion formed on an outer circumferential surface of the rotation control cap,

wherein the cap receiving groove receives the cap protrusion;

a female screw thread formed on an inner circumferential surface of the rotation control

10 cap; and

a male screw thread formed on a circumferential surface of the first hinge member,

wherein the male screw thread engages the female screw thread of the rotation control cap.

23. A method of unfolding a folding type mobile communication terminal to a maximum opening angle, the method comprising the steps of:

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rotating a rotation control device in a predetermined direction so that a first hinge member is forced towards an outer edge of the terminal, wherein a coupling hinge member is displaced into a first hinge housing;

lifting a first body of the terminal, which is rotatively coupled to a second body, so that a convex portion of the coupling hinge member passes over a convex portion of a second hinge member; and

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releasing the first body of the terminal so that a spring housed in a second hinge housing expands and forces the convex portion of the coupling hinge member to completely pass over the convex portion of the second hinge member, thereby completely unfolding the terminal.

24. A method of unfolding a folding type mobile communication terminal to a desired opening angle, the method comprising the steps of:

5 rotation a rotation control device in a predetermined direction so that a first hinge member is forced away from an outer edge of the terminal, wherein a coupling hinge member is displaced into a second hinge housing;

lifting a first body of the terminal, which is rotatively coupled to a second body, so that a protrusion on the coupling hinge member engages a groove on the first hinge member; and

10 releasing the first body of the terminal at the desired opening angle, wherein an elastic force generated by a spring housed in a second hinge housing presses the coupling hinge member against the first hinge member, thereby creating a frictional force to maintain the desired opening angle.